Claims

What is claimed:

1. A method of transmitting an optical beam, comprising:

modulating an optical beam to encode information through use of an electroabsorption modulator (EAM);

monitoring the encoded optical beam to measure a harmonic value; and

upon detection of the harmonic value, adjusting an electrical input provided to the EAM based upon the measured harmonic value.

2. The method of claim 1, further including sampling the encoded optical beam to measure the harmonic value.

3. The method of claim 2, further including sampling the encoded optical beam with a photoreceiver.

4. The method of claim 1, further including splitting the encoded optical beam to provide a sample signal and measuring the harmonic value of the sample signal.

5. The method of claim 1, wherein the harmonic value is measured for a second order harmonic.

6. The method of claim 1, further including:

encoding a pilot signal onto the optical beam;

monitoring the pilot signal; and

adjusting the electrical input based upon the measured harmonic value detected in the pilot signal.

7. A method for transmitting information in an optical communications system, comprising:

encoding information onto an output optical beam through use of an electroabsorption modulator (EAM);

monitoring the output optical beam from the electroabsorption modulator (EAM) to determine the magnitude of a harmonic;

correlating the magnitude of the harmonic with an optimum electrical signal value to be input to the EAM to reduce the magnitude of the harmonic; and

adjusting an electrical input to the EAM to equal the optimum electrical signal value.

8. The method of claim 7, wherein measuring the output optical beam includes measuring the output optical beam to determine the magnitude of a harmonic produced by encoding a pilot signal on the EAM.

9. The method of claim 8, further including measuring a pilot signal having a frequency that is outside a signal band range of an information signal encoded onto the output optical beam.

10. The method of claim 7, further including sampling the harmonic through use of a photoreceiver.

11. The method of claim 10, further including adjusting the electrical input to minimize the second order harmonic based upon the sampled harmonic.

12. The method of claim 7, wherein adjusting the electrical input includes adjusting the electrical input within a set of voltages corresponding to a range of values around a minimum harmonic value.

13. A computer readable medium having program instructions to cause a device to perform a method, comprising:

modulating an optical beam to encode information through use of an electroabsorption modulator (EAM);

monitoring the encoded optical beam to measure a harmonic value; and

upon detection of the harmonic value, adjusting an electrical input provided to the EAM based upon the measured harmonic value.

14. The computer readable medium of claim 13, further including tracking a correlation of the harmonic value and the voltage level of the electrical input to determine a voltage input level that correlates to a lowest occurrence of the harmonic.

15. The computer readable medium of claim 13, further including applying an adjusted biased electrical input to the input optical beam based upon the determined electrical input level that correlates to the lowest occurrence of the harmonic.

16. The computer readable medium of claim 13, further including adjusting the electrical input to minimize the harmonic.

17. The computer readable medium of claim 13, further including adjusting the biased electrical input to limit the harmonic to within 5% of a lowest occurrence of the harmonic.

18. An optical transmission system, comprising:

an electroabsorption modulator (EAM) configured to encode information in an optical beam and to modulate the optical beam according to an electrical input; and

a monitoring component configured to measure a harmonic value in the encoded optical beam and to calculate an electrical input, to be applied to the EAM so as to reduce the measured harmonic value.

19. The optical transmission system of claim 18, wherein the monitoring component is configured to measure a harmonic value of a second order harmonic.

20. The optical transmission system of claim 18, wherein the monitoring component is a signal processing card.

21. The optical transmission system of claim 18, wherein a photoreceiver is positioned to receive an output optical beam from the EAM.

22. The optical transmission system of claim 21, further including an optical splitter to split the output optical beam and to direct a sample signal to the photoreceiver.

23. The optical transmission system of claim 22, wherein the sample signal is 1% of the output optical beam.

24. The optical transmission system of claim 23, wherein the photoreceiver is positioned to receive the sample signal.

25. The optical transmission system of claim 18, further including an adjustment module operable to adjust the electrical input based upon changes in ambient temperature.

26. The optical transmission system of claim 18, further including an adjustment module operable to adjust the electrical input based upon changes in device generated temperature.

27. The optical transmission system of claim 18, further including an adjustment module operable to adjust the electrical input in greater amounts as the harmonic trends away from a lowest occurrence of the harmonic.

28. The optical transmission system of claim 18, further including an adjustment module operable to adjust the electrical input in lesser amounts as the harmonic trends toward a lowest occurrence of the harmonic.

29. The optical transmission system of claim 18, further including an optical source for providing the optical beam to the EAM.